Department of Health and Mental Hygiene

Family Health Administration

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CHILD DEATH REPORT 2005

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The report can be found at: ***http://www.fha.state.md.us/mch/html/cfr***

TABLE OF CONTENTS

DEFINITIONS AND EXPLANATORY NOTES

Infant Death: Death occurring to a person under one year of age.

Infant mortality rate: Number of infant deaths per 1,000 live births.

Neonatal death: Death occurring to an infant under 28 days of age.

Neonatal mortality rate: Number of neonatal deaths per 1,000 live births.

Postneonatal death: Death occurring to an infant between 28 days and one year of age.

Postneonatal death rate: Number of postneonatal deaths per 1,000 live births.

Child death: Death occurring to child between one year and up to varied upper age limits in adolescence. For the purpose of this report, the upper age limit is 17 years. It is important to note that sometimes childhood deaths are understood to also include death to infants.

***Child death rate*:** Number of child deaths per 100,000 population.

To overcome the problems associated with the statistical manipulation of small number of events, some of the information in this report is based on combined years of data (three or five years).

MAIN FINDINGS

- Of the 1006 children under 18 years who died in 2004, 62.8 percent were infants and 37.2 percent were children aged 1-17 years.

- Infant mortality rose to 8.5 per 1,000 live births in 2004 from 8.1 per 1,000 live births in 2003.

- Among infants, the leading causes of death included disorders related to short gestation and low birthweight, congenital malformations, maternal complications, and SIDS.

- Child mortality (1-17 years) increased to 28.4 per 100,000 population in 2004 from 25.6 in 2003.

- Between 2002-2004, African-American children aged 1-17 years died at almost double the rate of white children (41.8 vs. 21.9 per 100,000).

- Among children aged 1-17 years, the leading causes of death were unintentional injuries (33%), homicide (16.3%), malignant neoplasms (10.3%), diseases of the circulatory system (6.1%), congenital malformations (5.3%), and suicides (4.4%). Of the unintentional injuries, motor-vehicle crashes caused the most deaths to children.

- The oldest children (15-17 year olds) were impacted most by motor-vehicle injury deaths and homicides.

- The risk of homicide was greatest in infancy than for any childhood age until age 15.

- African-American children were disproportionately the victims of all the injury related deaths.

- White children committed suicide at a higher rate than African-American children.

- Statistically significant declines in infant mortality occurred in Harford, Montgomery, Prince George's, Queen Anne's, and Caroline Counties between the two five-year periods in the past decade (i.e., between 1995-1999 and 2000-2004).

- For children ages 1-17 years, statistically significant declines occurred in Baltimore City, Baltimore, and Prince Georges Counties between the two five-year periods in the past decade (i.e., between 1995-1999 and 2000-2004).

INTRODUCTION

Childhood deaths are a major public health problem and many of these are preventable fatalities.

Surveillance of childhood deaths is one of the most important components of child death prevention. It helps to determine the magnitude of child mortality, the leading causes of death, and the population groups most affected. In addition, this data is crucial for evaluating the effectiveness of program activities and for identifying trends and problems that need further investigation.

The report focuses on death to children aged 1-17 years. However, important aspects of death in infancy are also discussed.

Information is provided on all racial/ethnic categories. However, where the number of events is small, rates for such racial/ethnic categories are not calculated.

Injuries are the leading cause of death in children aged 1-17 years. Between 2002-2004, in Maryland, unintentional injuries comprised 33 percent of all deaths among children ages 1 to 17 years, followed by homicides, malignant neoplasms, diseases of the circulatory system, congenital malformations, and suicides. Overall, childhood death rates have declined during the past decade in Maryland and the U.S.

This report is based on existing data from the Department's Vital Statistics Administration. In the future, the report will incorporate data from the new State Child Fatality Review database, which is currently being developed. This database will also include qualitative findings and recommendations from local Child Fatality Review Teams.

The ultimate goal is to prevent child deaths, morbidity and disability, which are vital for improving the well-being of all of Maryland's children and ensuring that they are happy and live in peace.

DEMOGRAPHICS

Of Maryland's total population of 5.5 million in 2004, 1.4 million were children under 18 years, representing 25 percent of the population, which is comparable to national data (nationally, 26 percent of the population are children under 18 years). Whites comprised 60.5 percent of Maryland's child population. Minority children made up 39.5 percent of the population and included African-Americans (34.5%), American-Indians (0.4%), Asian and Pacific Islanders (4.6%). Hispanics, who could be of any race, comprised 6.7 percent of the child population (Table 1). This distribution mirrors that of the total population of Maryland.

TABLE 1. POPULATION DISTRIBUTION OF CHILDREN (UNDER 18 YEARS), MARYLAND, 2004

Total Population (under 18 years)	1,394,808
	Percent
White	60.5%
African-American	34.5%
American-Indian	0.4%
Asian or Pacific Islander	4.6%
Hispanic (any race)	6.7%

With a poverty rate of 8.8 percent for the overall population and 10.4 percent for children, Maryland has one of the lowest poverty rates overall and for children in the nation. However, there are varying degrees of child poverty throughout the state, ranging from a low of 3.8 percent in Howard County to a high of 30.6 percent in Baltimore City. Nationally, 18 percent of children live in poverty. In 2004, in Maryland, 90.4 percent of children were covered by health insurance compared with 88.8 percent nationally.

OVERALL TRENDS IN CHILD DEATHS

In 2004, there were 1006 deaths of infants and children under the age of 18 years in Maryland. This age range was utilized for this report because it encompasses the ages for which the State Child Fatality Review Team has responsibility. The overall gradual decrease in infant morality rate in the past decade has been interrupted by increases in two consecutive years in recent times. From a rate of 7.6 per 1,000 live births in 2002, the infant mortality rate rose to 8.1 in 2003 and again to 8.5 per 1,000 live births in 2004, for a total increase of 12 percent since 2002 (Table 2 and Figure 1). In fact, this is the first time in 30 years that the infant mortality rate increased in two consecutive years. There has also been an overall decline in the number and rate of child deaths in the state over the past decade. However, the rate rose from 25.6 per 100,000 population in 2003 to 28.4 per 100,000 population in 2004. (Table 3 and Figure 2). It is important to note that many of these deaths in childhood could be prevented with appropriate interventions in both the public and private sectors.

TABLE 2. INFANT DEATHS: NUMBER AND INFANT MORTALITY RATE, MARYLAND, 1995-2004		
Year	Number	*Rate
1995	631	8.7
1996	602	8.4
1997	606	8.6
1998	618	8.6
1999	596	8.3
2000	550	7.4
2001	587	8.0
2002	556	7.6
2003	610	8.1
2004	632	8.5
Source: Vital Statistics Administration, DHMH *Per 1,000 live births		

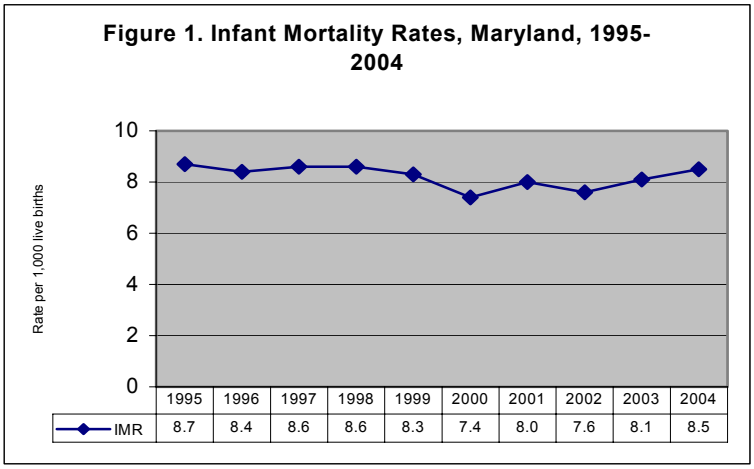
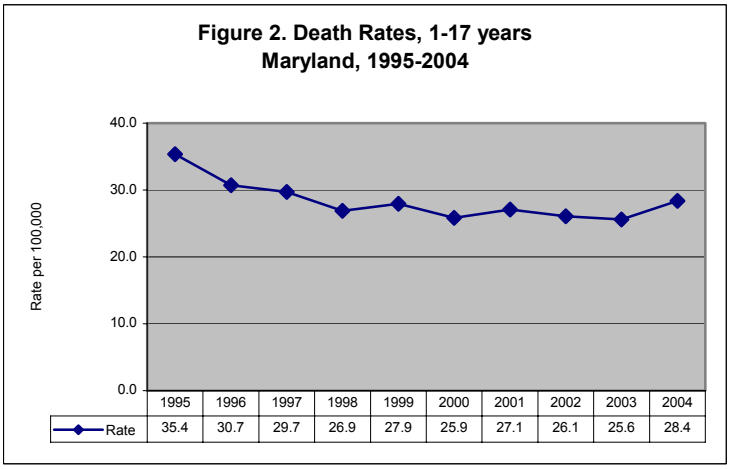


TABLE 3. CHILD DEATHS (1-17): NUMBER AND RATE, MARYLAND, 1995-2004		
Year	Number	*Rate
1995	424	35.4
1996	373	30.7
1997	356	29.7
1998	327	26.9
1999	346	27.9
2000	333	25.9
2001	351	27.1
2002	340	26.1
2003	334	25.6
2004	374	28.4
Source: Analysis of data from Vital Statistics Administration, DHMH *Per 100,000 population		



The average infant mortality rate has decreased by 7.1 percent between the five-year periods of 1995-1999 and 2000-2004. The neonatal mortality rate and the postneonatal mortality rate declined by 4.4 percent and 13.4 percent respectively (Table 4). Overall, for children ages 1 through 17 years, the mortality rate fell by 11.6 percent and there was also a decline in mortality rates for young children and adolescents (Table 5).

TABLE 4. NUMBER OF INFANT, NEONATAL AND POSTNEONATAL DEATHS BY RACE, DEATH RATES AND PERCENT CHANGE IN RATES FROM 1995-1999 TO 2000-2004, MARYLAND**

	Number of deaths		Death rates*		Percent	
	1995-1999	2000-2004	1995-1999	2000-2004	change**	
Infant mortality*						
All races***	3053	2935	8.5	7.9	-7.1	****
White	1211	1181	5.6	5.3	-4.5	
Black	1751	1665	15.2	13.8	-9.2	****
Neonatal mortality*						
All races***	2150	2126	6.0	5.7	-4.4	
White	815	857	3.8	3.9	3.0	
Black	1263	1203	11.0	10.0	-9.1	****
Postneonatal mortality*						
All races***	903	809	2.5	2.2	-13.4	****
White	396	324	1.8	1.5	-19.9	****
Black	488	462	4.2	3.8	-9.6	

Source: Infant Mortality in Maryland, Vital Statistics Administration, DHMH
*Rate per 1,000 live births
**Percent change is based on the exact rates and not the rounded rates represented here
***Includes races other than White and African American
***Rates for 1995-1999 and 2000-2004 differ significantly (p<.05)

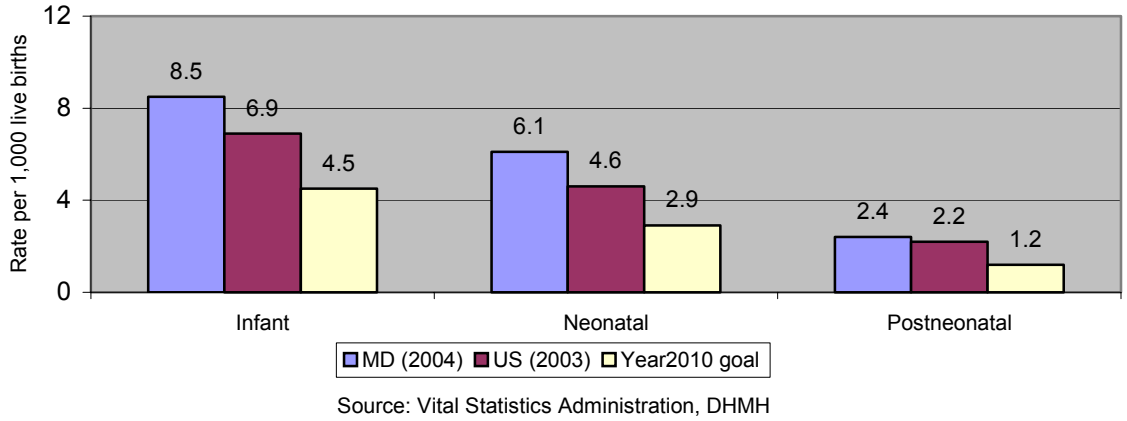
TABLE 5. NUMBER OF DEATHS, DEATH RATES AND PERCENT CHANGE IN RATES FOR CHILDREN UNDER 18 YEARS, MARYLAND, 1995-1999 TO 2000-2004

	Number Deaths		Death Rates*		Percent	
Age group	1995-1999	2000-2004	1995-1999	2000-2004	change**	
< 1 year	3,053	2,935	858.1	797.6	-7.1	***
1-17 years	1,826	1,733	30.1	26.6	-11.6	***
1-4 yr	486	435	34.4	30.1	-12.4	***
5-9 yr	307	280	16.4	14.8	-9.4	
10-14 yr	371	382	20.9	18.9	-9.8	
15-17 yr	662	636	65.6	55.2	-15.9	***

Source: Source: Analysis of data from Vital Statistics Administration, DHMH
*Per 100,000 population in specified age group
**Percent change is based on the exact rates and not the rounded rates presented here
***Rates for 1995-1999 and 2000-2004 differ significantly (p<.05)

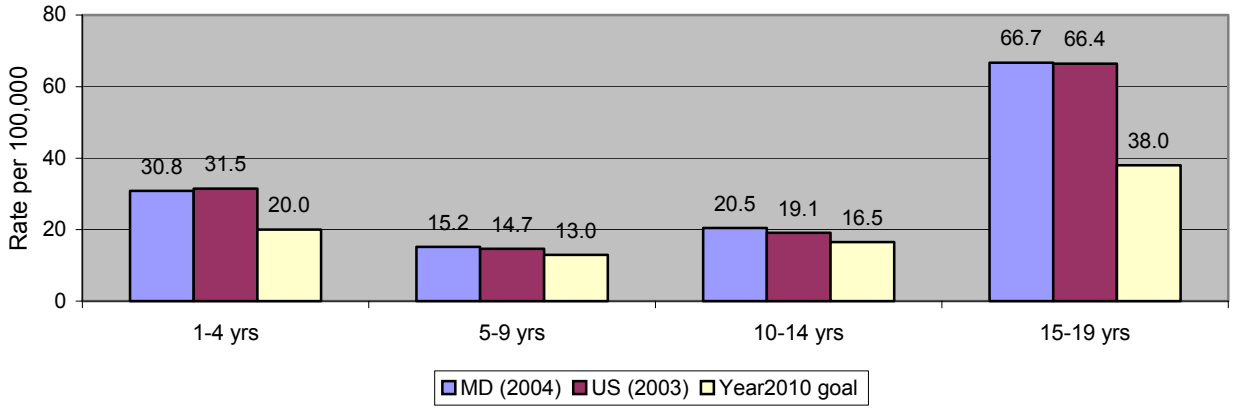
COMPARISION TO NATIONAL STATISTICS

Figure 3. Infant Deaths



Source: Vital Statistics Administration, DHMH

Figure 4. Child/Adolescent Deaths



Source: Ananlysis of data from Vital Statistics Administration, DHMH

The 2004 Maryland infant and neonatal mortality rates were higher than the 2003 national rates (the most current year for which national data is available). The Maryland postneonatal mortality rate, however, approximated the national rate (Figure 3). Among children ages 1-19 years, Maryland's age-specific mortality rates were comparable to national rates (Figure 4).

National objectives for infant and child mortality have been established in the Healthy People 2010 project of the United States Department of Health and Human Services. While Maryland is close to meeting several of these objectives, others remain a challenge. It is anticipated that progress will be realized now that jurisdictions have Child Fatality Review infrastructure and the improved surveillance system will identify areas for appropriate intervention (Figures 3 and 4).

CHILD DEATHS

In order to avoid preventable deaths in childhood, it is necessary to understand both the causes of death and which children are at particular risk. A breakdown of the age of death for children in Maryland in 2004 is presented in Table 6 and Figure 5.

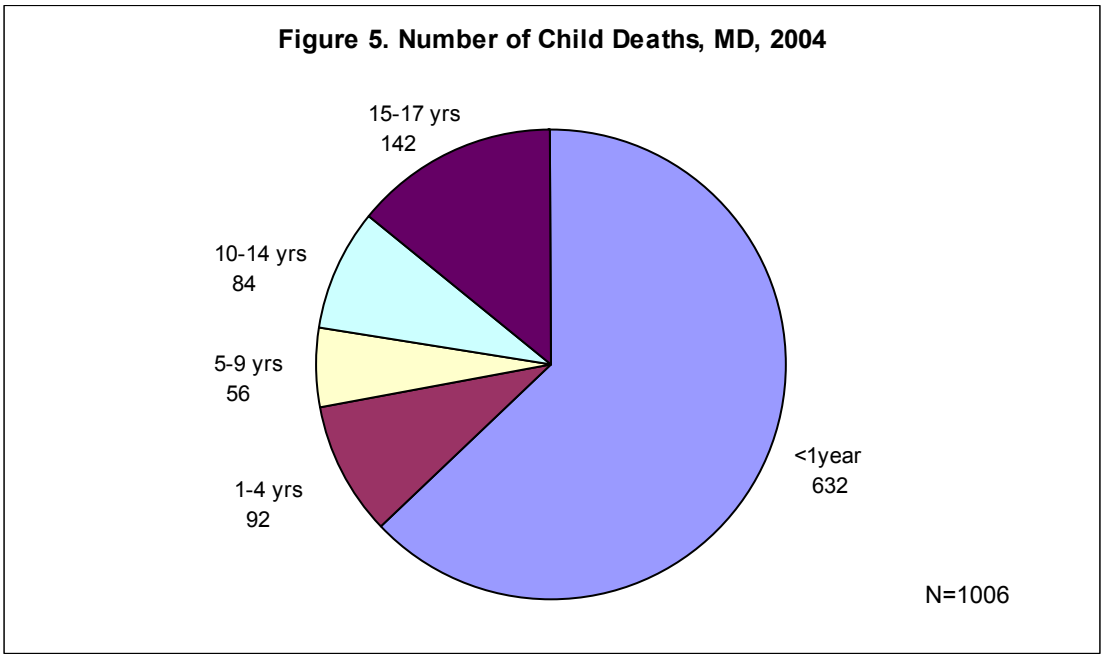
TABLE 6. CHILD DEATHS UNDER 18 YEARS, MARYLAND, 2004

Age group	# Deaths	% of Total
<1 year	632	62.8
<=28 days	*452*	*44.9*
29-365 days	*180*	*17.9*
1-4 years	92	9.1
5-9 years	56	5.6
10-14 years	84	8.3
15-17 years	142	14.1
Total	**1006**	

Source: Analysis of data from Vital Statistics Administration, DHMH

Of the 1006 deaths, 62.8 percent occurred in the first year of life with 44.9 percent of the total occurring in the first month of life. Therefore, efforts to lower overall child fatalities must be coordinated with activities specifically aimed at addressing infant deaths. Although mortality rates fall after infancy, they rise again during adolescence. Teens and young adults have approximately two times the number of fatalities as seen in younger children.

Figure 5. Number of Child Deaths, MD, 2004



Source: Analysis of data from Vital Statistics Administration, DHMH

Gender and race also influence the number and rate of death. In 2004, of the 374 deaths among 1 to 17 year old children, 65 percent occurred in boys, representing a rate of 36 per 100,000. Among girls, the death rate was 20.3 per 100,000 (Table 7).

This trend is also seen in infancy where 55.5 percent of the deaths were to males.

African American children were at an increased risk of dying both in the first year of life and in later childhood. In 2004, African American infants died at 2.7 times the rate for white infants. This ratio remained elevated at 1.9 in children 1 through 17 years of age (Table 8 and Figure 6). Evidence-based strategies are needed to effectively address the racial disparities in infant and child mortality in Maryland.

TABLE 7. DEATHS, 1-17 YEARS, BY GENDER, MARYLAND, 2004

Gender	Number of Deaths	% of total	Rate*
Male	243	65.0	36.0
Female	131	35.0	20.3
Total	**374**		**28.4**

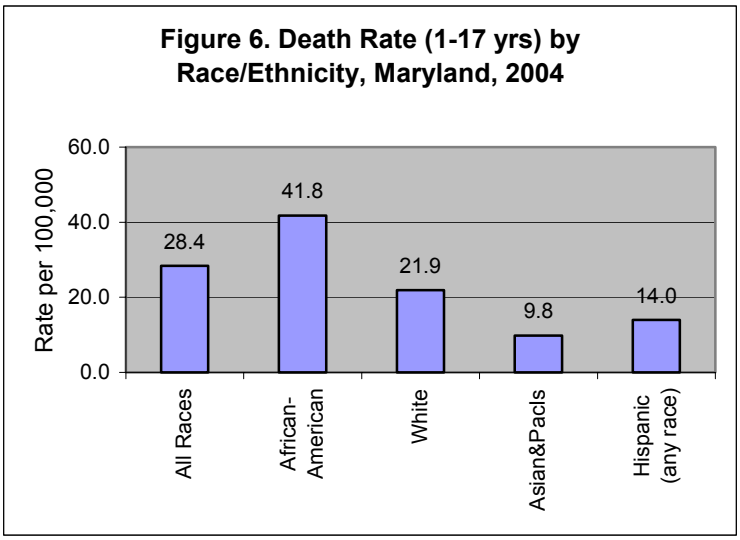
Source: Analysis of data from Vital Statistics Administration, DHMH
*Rate per 100,000 population

TABLE 8. DEATHS, 1-17 YEARS, BY RACE, MARYLAND, 2004

Race	# of Deaths	Rate*
African American	190	41.8
White	175	21.9
Am. Indian	0	-
Asian & Pac Is.	6	9.8
Other	3	-
Total	**374**	**28.4**
Hispanic (any race)	13	14.0
Ratio AA:W		1.9

Source: Analysis of data from Vital Statistics Administration, DHMH
*Rate per 100,000 population
-Rates based on fewer than five events in the numerator are not presented since rates based on small numbers are likely to be unstable.

Figure 6. Death Rate (1-17 yrs) by Race/Ethnicity, Maryland, 2004



Source: Analysis of data from Vital Statistics Administration, DHMH

CAUSES OF CHILD DEATHS

Understanding the underlying cause of death in childhood is necessary in order to develop strategies to prevent these events when possible. Specific causative factors vary significantly depending on the age of the child. In the first year of life, the leading causes of mortality relate to prematurity and low birthweight. Excess numbers of preterm and low birthweight infants account for the higher infant mortality rate in Maryland. After the first month of life, Sudden Infant Death Syndrome (SIDS) and congenital anomalies are the leading causes of death in infancy. Table 9 presents the leading causes of infant mortality in 2004. The number of deaths is given in parenthesis.

TABLE 9. LEADING CAUSES OF INFANT DEATH, MARYLAND, 2004

	Neonatal (452)	Postneonatal (180)	INFANT (632)
1	Short gestation, LBW (127)	SIDS (59)	Short gestation, LBW (129)
2	Maternal complications (63)	Congenital malformation (24)	Congenital malformation (83)
3	Congenital Malformations (59)	Neonatal hemorrhage (15)	Maternal complications (65)
4	Complications of placenta, cord and membranes(37)	Necrotizing enterocolitis of newborn (8)	SIDS (64)
5	Bacterial sepsis of newborn (24)	Diseases of circulatory system (6)	Complications of placenta, cord and membranes (37)
6	Respiratory distress of newborn (23)	Bacterial sepsis of newborn (3)	Bacterial sepsis of newborn (27)
7	Neonatal Hemorrhage (15)	Respiratory distress of newborn (3)	Respiratory distress of newborn (26)
8	Necrotizing enterocolitis of newborn (14)	Short gestation, LBW (2)	Necrotizing enterocolitis of newborn (22)
9	Diseases of circulatory system (7)	Maternal complications (2)	Neonatal hemorrhage (15)
10	SIDS (5)	Slow fetal growth (1)	Diseases of circulatory system (13)

Source: Analysis of data from Vital Statistics Administration, DHMH

SUDDEN INFANT DEATH SYNDROME (SIDS)

SIDS is the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history. SIDS remains the leading cause of death in the first year of life beyond the neonatal period. SIDS is of particular public health concern because it can be reduced through safe sleeping practices for infants and education regarding cultural practices for specific infant care issues. In Maryland, the number of deaths from SIDS has decreased throughout the 1990's with a 15.5 percent decrease between 1995-1999 and 2000-2004. In 2002-2004, there were 177 SIDS deaths. These deaths included other sudden infant deaths classified as Sudden Unexpected Deaths in Infancy (SUDI). SUDI includes cases where there is confirmation of bed-sharing and in which the possibility of asphyxia, due to unsafe sleeping surfaces, could not be ruled out.

Risk factors for SIDS include: 1) a physiological defect; 2) critical development period (SIDS risk peaks between two and four months of age); and 3) environmental stressors such as oxygen depletion while sleeping face down, exposure to prenatal or second-hand smoke, and overheating while wrapped in heavy blankets. Additionally, the mother's health and behavior during pregnancy and the infant's health before birth are important factors in the occurrence of SIDS.

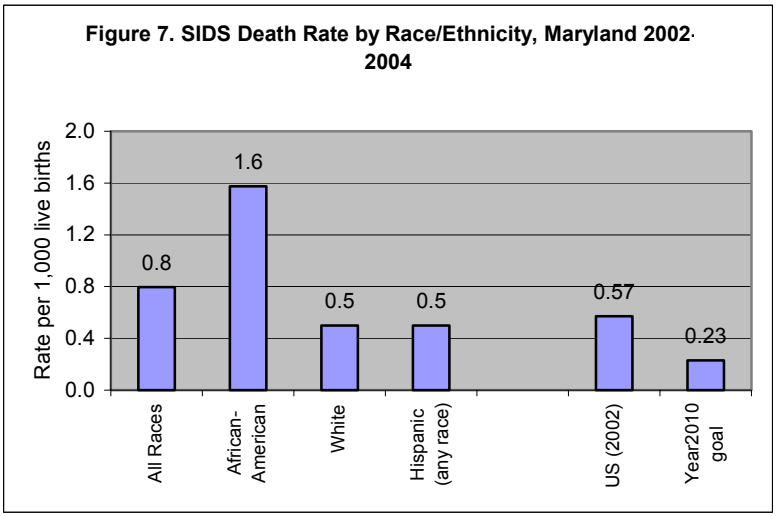
Of the 177 SIDS deaths between 2002 and 2004, 117 (66.1%) were boys and 60 (33.9%) were girls. Sixty white infants died from SIDS, a rate of 0.5 per 1,000 live births. Among African-Americans, there were 114 SIDS deaths, representing a rate of 1.6 per 1,000 live births. Ten Hispanic infants (any race) died from SIDS, a rate of 0.5 per 1,000 live births (Table 10 and Figure 7). African-American infants died from SIDS at 3.2 times the rate for white infants. Maryland's average SIDS death rate was higher than the 2002 national rate (the most current year for which national data is available). The Healthy People 2010 goal calls for reducing death from SIDS to no more than 0.23 per 1,000 live births.

TABLE 10. SIDS DEATHS BY RACE/ETHNICITY, MARYLAND, 2002-2004

Race	# Deaths	Rate*
African American	114	1.6
White	60	0.5
American-Indian	0	-
Asian or Pacific Is.	1	-
Other	2	-
Total	**177**	**0.8**
Hispanic (any race)	10	0.5
Ratio AA:W		3.2

Source: Analysis of data from Vital Statistics Administration, DHMH
*Rate per 1,000 live births
-Rates based on fewer than five events in the numerator are not presented since rates based on small numbers are likely to be unstable.

Figure 7. SIDS Death Rate by Race/Ethnicity, Maryland 2002-2004



CAUSES OF DEATH AMONG OLDER CHILDREN

Table 11 shows the causes of death among children 1-17 years in 2004 and for the period 2002-2004. Figure 8 demonstrates the graphical distribution of the causes of death in 2004.

TABLE 11. NUMBER OF DEATHS BY CAUSE 1-17 YEARS, MD, 2004 AND 2002-2004

Cause of Death	2004	2002-2004	2002-2004 %
Unintentional Injuries (Accidents)	123	349	33.0
Transport	97	254	23.7
Non-Transport	26	95	
Homicide	56	171	16.3
Malignant neoplasms	41	106	10.3
Suicides	14	46	4.4
Diseases of circulatory system	17	64	6.1
Congenital Malformations	23	56	5.3
Other	100	256	24.4
Total	**374**	**1048**	

Source: Analysis of data from Vital Statistics Administration, DHMH

Figure 8. Number of Deaths by Cause (1-17 years), Maryland, 2004

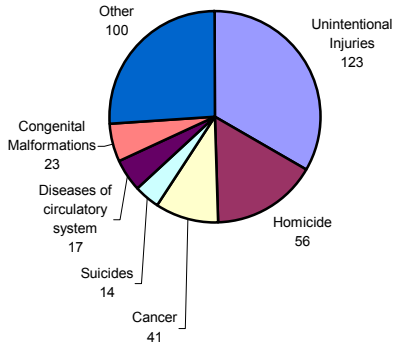


Table 12 shows the ranking by the number of deaths among the various childhood age groups (1-17 years) for the three-year period 2002-2004. The number of deaths is given in parenthesis.

TABLE 12. LEADING CAUSES OF DEATH BY AGE GROUP, MARYLAND, 2002-2004

Age	1-4 years	5-9 years	10-14 years	15-17 years
Rank	N=255	N=165	N=227	N=401
1	Unintentional injury (61)	Unintentional injury (64)	Unintentional injury (63)	Unintentional injury (161)
2	Homicides (31)	Malignant neoplasms (22)	Malignant neoplasms (31)	Homicide (112)
3	Malignant neoplasms (30)	Congenital malformations (11)	Homicide (19)	Suicide (28)
4	Congenital malformations (27)	Diseases of circulatory system (11)	Suicide (18)	Malignant Neoplasms (23)
5	Diseases of circulatory system (16)	Homicide (9)	Diseases of circulatory system (17)	Diseases of circulatory system (20)

INJURIES

Injuries were the leading cause of death in children aged 1-17 years, with unintentional injuries accounting for most of the injury-related deaths in all childhood age groups (Table 12). Between 2002 and 2004, unintentional injuries constituted the leading cause of death (60%). Homicide and suicide (intentional injuries) represented 29.4 percent and 7.9 percent respectively of all fatal injuries (Table 13 and Figure 9). Many of these injury deaths are preventable. Undetermined intent refers to cases where information is insufficient to enable a medical or legal authority to a make a distinction between an accident, self-harm, and assault.

Vignette:
Girl, 2, drowns in pool at day care in Parkville
Source: The Baltimore Sun, August 16, 2005

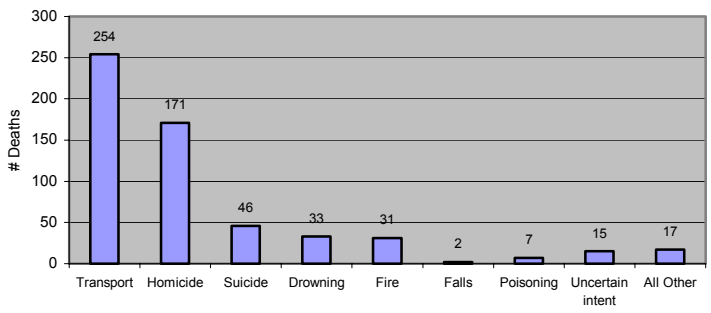
"A 2-year old girl drowned in a pool at a home day care facility in Parkville, prompting state officials to suspend the license of the day care provider, authorities said. The child was discovered floating in the pool by her day care provider. The girl apparently followed another child who opened the gate to fenced area around the pool to let out a cat."

TABLE 13. NUMBER OF INJURY RELATED DEATHS, 1-17 YEARS MARYLAND, 2002-2004

Type of Injury	2002-2004	% of Total
Unintentional	**349**	**60.0**
Transport	**254**	
-MVA	237	**40.7**
-Other	17	
Non-Transport	**95**	
-Falls	2	
-Drowning	33	
-Fire	31	
-Poisoning	7	
-Other	22	
Homicide	**171**	**29.4**
-Firearm	100	
-Other	71	
Suicide	**46**	**7.9**
-Firearm	15	
-Other	31	
Legal intervention	**1**	**0.2**
Undetermined Intent	**15**	**2.6**

Source: Analysis of data from Vital Statistics Administration, DHMH

Figure 9. Injury Related Childhood Deaths (1-17 yrs) Maryland, 2002-2004



Motor Vehicle Accidents

Of the unintentional injuries, motor vehicle-related injuries were the leading cause of death to children. Between 2002 and 2004, 237 children ages 1-17 years were killed in motor vehicle crashes (Table 14).

TABLE 14. CATEGORY OF PERSONS KILLED IN MVA, 1-17 YEARS, MARYLAND, 2002-2004

Person	Number	Percent
Driver of vehicle	33	13.9
Passenger	49	20.7
Pedestrian	48	20.3
Motorcycle rider	3	1.3
Pedal cyclist	7	3.0
Unspecified occupant of vehicle	20	8.4
Unspecified	77	32.5
Total	**237**	

Source: Analysis of data from Vital Statistics Administration, DHMH

TABLE 15. UNINTENTIONAL TRANSPORT INJURY DEATHS BY RACE, 1-17 YEARS, MARYLAND, 2002-2004

	MVA		Other Transport	
Race	**Number**	**Rate***	**Number**	**Rate***
African American	82	5.9	2	-
White	142	5.6	13	0.6
Am. Indian	1	-	0	-
Asian &Pac Is.	8	4.2	1	-
Other	4	-	1	-
Total	**237**	**5.7**	**17**	**0.4**
Hispanic (any race)	11	4.4	0	-

Source: Analysis of data from Vital Statistics Administration, DHMH
*Per 100,000 population
-Rates based on fewer than five events in the numerator are not presented since rates based on small numbers are likely to be unstable

TABLE 16. UNINTENTIONAL TRANSPORT INJURY DEATHS: NUMBER AND RATE BY AGE GROUP, 1-17 YEARS, MARYLAND, 2002-2004

	MVA		Other Transport	
Age group	**Number**	**Rate***	**Number**	**Rate***
1-4	24	2.7	2	-
5-9	39	3.5	3	-
10-14	41	3.3	2	-
15-17	133	18.8	10	1.4
Total	**237**	**6.0**	**17**	**0.4**

Source: Analysis of data from Vital Statistics Administration, DHMH
*Per 100,000 population
-Rates based on fewer than five events in the numerator are not presented since rates based on small numbers are likely to be unstable

The motor vehicle-related injury mortality included deaths occurring to children who were drivers, passengers, pedestrians, or other types of victims.

Of the 237 motor vehicle-related deaths between 2002 and 2004, 143 (60%) occurred among boys and 94 (40%) occurred among girls. One hundred and forty-two white youths died in motor vehicle crashes, a rate of 5.6 per 100,000 population. Among African-American children, there were 82 motor vehicle-related deaths, representing a rate of 5.9 per 100,000 population (Table 15). Older children bore the brunt of the cases, dying at the rate of 18.8 per 100, 000 population in the 15-17 year age group (Table 16).

For a fuller understanding of motor vehicle-related deaths, additional sources of data, such as data from the Department of Transportation and police reports may be examined.

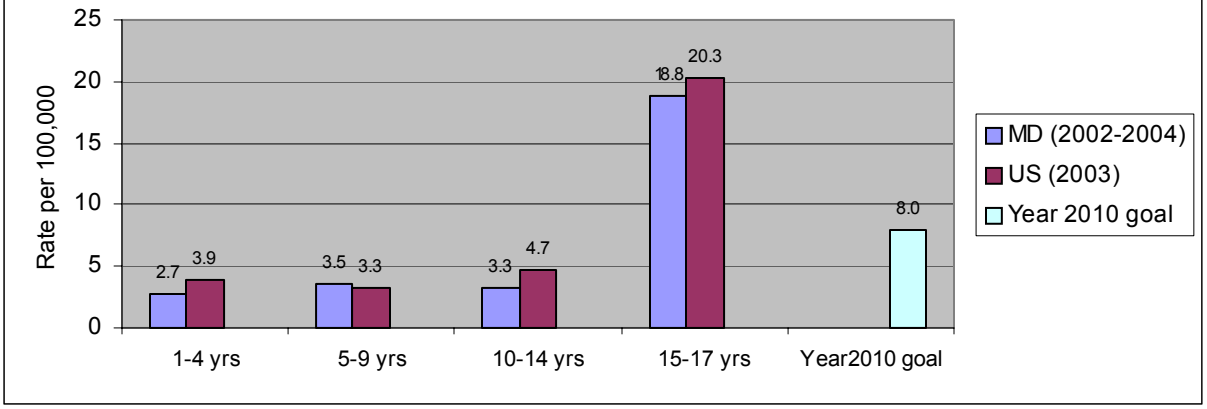
Vignette:
Md. Teen's Death Adds to Concerns About ATVs
Source: The Washington Post, August 14, 2005

"A 16-year-old boy, riding on a powerful All-terrain vehicle (ATV), died in a collision with another ATV driven by his friend on a rocky tractor path through a meadow on a Frederick County farm, authorities (police said). As the decedent roared out of the woods and his friend rounded a curve beside a cornfield, the two boys collided head-on at such high speed that witnesses saw debris fly into the air. The friend survived the accident with injuries. Both teenagers were wearing helmets, but neither helmet had been strapped on."

Comparison to National Statistics: Motor Vehicle Accidents

In all childhood age groups, Maryland's mortality rates from motor vehicle accidents were lower than or comparable to national rates (Figure 10; 2003, the most current year for which national data is available). The objective of the Healthy People 2010 goal is to reduce the mortality rate from motor vehicle crashes to no more than 8.0 per 100,000 in the general population (all races, all gender, all ages). In 2003, Maryland's total mortality rate from motor vehicle accidents (all ages) was 12.6 per 100,000 population.

Figure 10. Deaths from Motor Vehicle Accidents: Comparison to National Statistics



Source: MD data – Analysis of data from Vital Statistics Administration, DHMH
National data – National Center for Injury Prevention and Control

VIOLENCE-RELATED DEATHS

Violence is a part of many children's lives in the U.S. It originates in many places; it could be inflicted by self, family members, peers or other members of the community. Violence affects children and youth at every age, even the newborn. Sometimes children are themselves perpetrators of violence.

Homicides

There were 193 homicides in 2002-2004 among infants and children aged 0 to 17 years. The numbers of homicide deaths among African-American and white children were 151 and 39 respectively, representing rates of 11.0 per 100,000 for African-American children and 1.6 per 100,000 for white children (Table 17, Figure 11). The greatest number of homicides occurred in the oldest children and most often involved the use of firearms; 86 of the firearm-related deaths were in adolescents aged 15-17 years, representing a rate of 12.2 per 100,000 in this age group (Table 18 and Figure 11). The homicide rate for infants (under one year of age) was higher than for any age group up until age 17 years; 24 infants were victims of homicide, representing a rate of 10.7 per 100,000. Of the 99 firearm-related deaths, 88 (88.9%) were among males and 11 (11.1%) among females (Table 19).

TABLE 17. HOMICIDE: TOTAL NUMBER AND AVERAGE RATE* BY RACE, 0-17 YEARS, MARYLAND, 2002-2004

	All homicides		By firearm		Other means	
	Number	Rate*	Number	Rate*	Number	Rate*
African American	151	11.0	89	6.5	62	4.5
White	39	1.6	10	0.4	29	1.2
Am. Indian	0	-	0	-	0	-
Asian & Pac. Is	3	-	0	-	3	-
Total	**193**	**4.6**	**99**	**2.4**	**94**	**2.3**
Hispanic (any race)	11	4.2	9	3.4	2	-

Source: Analysis of data from Vital Statistics Administration, DHMH

* Per 100,000

-Rates based on fewer than 5 events in the numerator are not presented since rates based on small numbers are likely to be unstable.

TABLE 18. HOMICIDE: TOTAL NUMBER AND AVERAGE RATE* BY AGE GROUP, 0-17 YEARS, MARYLAND, 2002-2004

	All Homicides		By Firearm		Other Means	
Age group	Number	Rate	Number	Rate	Number	Rate
Under 1	24	10.7	1	-	23	10.3
1-4	31	3.5	1	-	30	3.4
5-9	8	0.7	1	-	7	0.6
10-14	19	1.5	10	0.8	9	0.7
15-17	111	15.7	86	12.2	25	3.5
Total	**193**	**4.9**	**99**	**2.5**	**94**	**2.4**

Source: Analysis of data from Vital Statistics Administration, DHMH

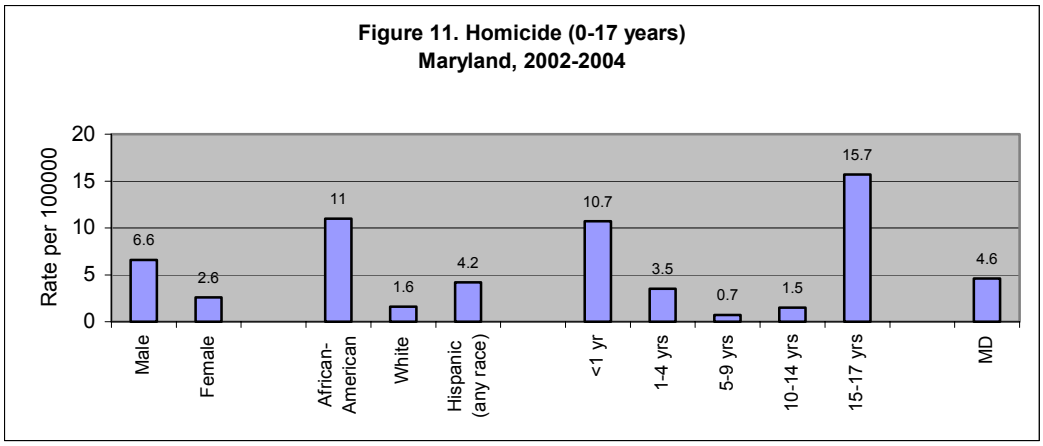
*Per 100,000 population

-Rates based on fewer than five events in the numerator are not presented since rates based on small numbers are likely to be unstable.

TABLE 19. MEANS OF HOMICIDE BY SEX, 0-17 YEARS, MARYLAND, 2002-2004

	Male	Female	Total
By firearm	88	11	99
Other means	53	41	94
Total	**141**	**52**	**193**

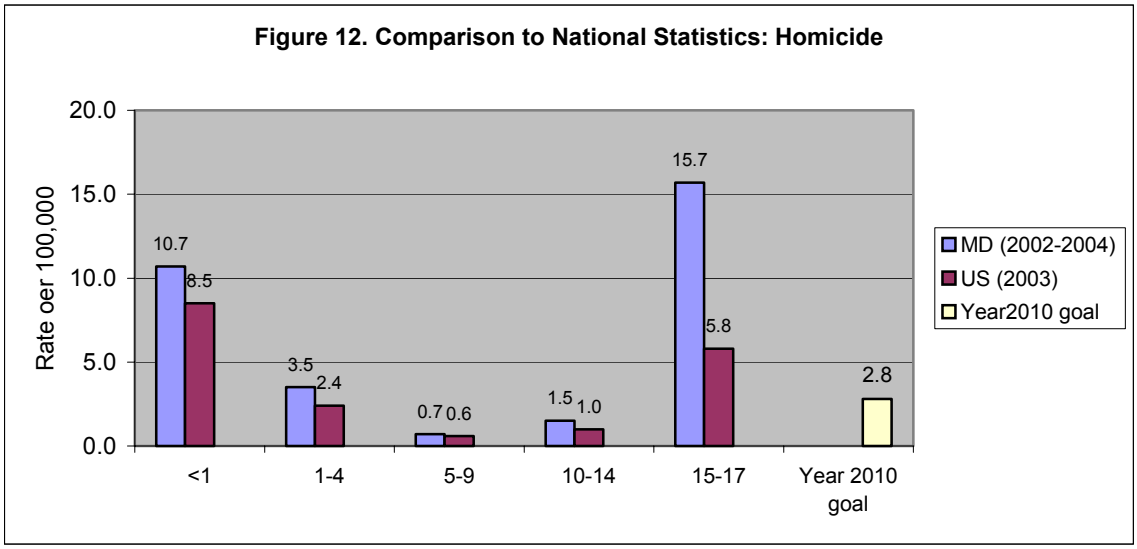
Source: Analysis of data from Vital Statistics Administration, DHMH



Source: Analysis of data from Vital Statistics Administration, DHMH

Comparison to National Statistics: Homicides

While Maryland's homicide rates in 2002-2004 for children under 15 years were slightly higher than the 2003 national rate, the rate for the older children was substantially higher than the national rate (Figure 12; 2003, the most current year for which national data is available). The Healthy People 2010 goal calls for reducing the homicide rate to no more than 2.8 per 100,000 population (all races, all gender, all ages). In 2003, Maryland's total mortality rate from homicide (all ages) was10.2 per 100,000 population.



Source: MD data – Analysis of data from Vital Statistics Administration, DHMH
National data – National Center for Injury Prevention and Control

Vignette:
Mom pleads guilty in the starvation deaths of infants
Source: The Baltimore Sun, February 14, 2005

"A 17 – year-old teenage mother admitted guilt in the starvation deaths of her 1-month-old twin daughters. The teen mother pleaded guilty in a Baltimore Circuit Court to two counts of child abuse resulting in death. The severely malnourished and battered twins lived with their parents in the basement of a vacant Northeast Baltimore rowhouse with no electricity or toilet. The twins showed signs of physical child abuse, such as fractured skulls and broken ribs, but it was the starvation that caused their death, authorities said in court."

Vignette:
Girl, 17, killed in Mid-Govans
Source: The Baltimore Sun, March 24, 2005

"A teenage girl was found fatally stabbed early yesterday in the Mid-Govans neighborhood of North Baltimore, police said. A witness saw a man and a teenage girl fighting shortly after midnight. The man overpowered the female, pulled her into a park and stabbed her multiple times in the upper body."

Vignette:
Man charged in son's death
Source: The Baltimore Sun, October 06, 2005

"A man has been charged in the death of his 13 month-old son, who was left in a car while the man went to work, police said. The man was to have taken the boy to a day care arrangement. The boy was left in a car for about 3 ½ hours outside his father's work place, and when the man returned and found the child hot and lethargic, the boy was hospitalized. The boy died two days later."

SUICIDE

TABLE 20. SUICIDE: NUMBER AND RATE BY GENDER, 10-17 YEARS, MARYLAND, 2002-2004

Gender	Number of Deaths	% of total	Rate*
Male	33	71.7	3.3
Female	13	28.3	1.4
Total	**46**		**2.4**

Source: Analysis of data from Vital Statistics Administration, DHMH
*Rate per 100,000 population

TABLE 21. SUICIDE: NUMBER AND RATE BY RACE/ETHNICITY, 10-17 YEARS, MARYLAND, 2002-2004

Race	Number	Rate*
African American	10	1.5
White	33	2.8
Am. Indian	1	-
Asian & Pac Is.	1	-
Other	1	-
Total	**46**	**2.4**
Hispanic (any race)	1	-

Source: Analysis of data from Vital Statistics Administration, DHMH
*Per 100,000 population
-Rates based on fewer than 5 events in the numerator are not presented since rates based on small numbers are likely to be unstable.

TABLE 22. SUICIDE: NUMBER AND RATE BY AGE GROUP, 10-17 YEARS, MARYLAND, 2002-2004

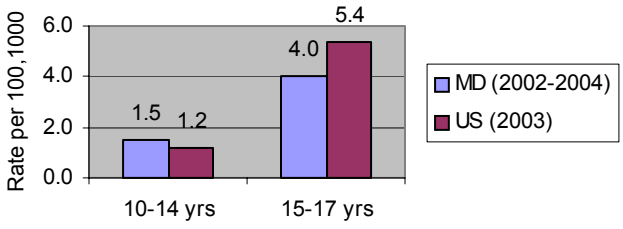
Age group	Number	Rate*
10-14	18	1.5
15-17	28	4.0
Total	46	2.4

Source: Analysis of data from Vital Statistics Administration, DHMH
*Per 100,000 population

Suicide among young people is a significant public health problem in the U.S., and it is the third leading cause of death among youth. Suicide is generally a complication of mental health problems, but a mental health disorder is often not the lone cause and it may result from additional risk factors.

Of the 46 children aged 10-17 years who committed suicide between 2002 and 2004, 33 were males and 13 were females, representing rates of 3.3 and 1.4 per 100,000 population respectively (Table 20). Ten African-American children committed suicide, a rate of 1.5 per 100,000 population. Among white children, 33 committed suicide, representing a rate of 2.8 per 100,000 population (Table 21). Older children (15-17 years) committed suicide at a much higher rate (4.0 per 100,000) than younger children (Table 22, Figure 13).

Fig 13. Comparison to National Statistics Suicide



Source: MD data - Analysis of data from Vital Statistics Administration, DHMH
National Data - National Center for Injury Prevention

While for children ages 10-14 years, Maryland's suicide rate was slightly higher than the national rate, Maryland had a lower suicide rate than the nation for older adolescents (Figure 13, 2003, the most current year for which national data is available).

Vignette:
Is School Too Much for Students?
Source: Washington Post, May 1, 2006

"A 16-year-old popular, well-regarded junior took her life April 19 by standing in the path of a commuter train. On March 5, another popular junior, also 16, shot himself. The suicides have many in the school community searching for answers."

NATURAL CAUSES OF DEATH

In addition to being classified according to cause of death, death is also classified by manner as natural, accident (unintentional), homicide, suicide, and undetermined. Deaths from natural causes constituted a substantial proportion of mortality among children under 18 years of age in Maryland during the period 2002-2004. A death due to a natural cause can result from one of many serious health conditions. Congenital anomalies, genetic disorders, cancers, heart and cerebral problems, serious infections and respiratory disorders, such as asthma, can be fatal to children. Many of these conditions are not believed to be preventable to the same extent to which unintentional injuries, homicides or suicides are preventable. However, there are some illnesses such as asthma, infectious diseases and some screenable genetic disorders, for which fatalities may be prevented.

CHILD DEATHS IN MARYLAND JURISDICTIONS

Measures to reduce child deaths often originate in local areas through public health and public policy interventions. Specific causes of death may vary in different geographic locations. Data showing the occurrence of infant and child deaths by jurisdiction is included in the following pages. In these tables and map, an average rate over five years is used for comparison because a small number of deaths in a jurisdiction in a single year may result in considerable variation, which may not indicate an actual significant change. The tables also include an analysis of the change in the rate in jurisdictions over a ten-year period.

Maryland's average infant mortality rate declined by 7.1 percent between 1995-1999 and 2000-2004 (Table 23). However, statistically significant declines occurred only in Howard, Harford, Montgomery, Prince George's, Queen Anne's, and Caroline Counties (Draft Infant Mortality Rates by Race, Maryland, 1994-2004, Vital Statistics Administration).

For children ages 1-17 years, the average mortality rate declined by 12.7 percent between 1995-1999 and 2000-2004 (Table 24). Statistically significant declines occurred, however, only in Baltimore City, Baltimore County and Prince Georges County. Changes in the sociodemographic characteristics of the population may also have contributed to the changes in infant and child deaths rates.

The numbers of childhood deaths by jurisdiction (2000-2004) are shown in Appendix A.

Figure 14 shows the comparison between death rates for children ages 1-17 years in Maryland jurisdictions and the Maryland average during the period 2000-2004.

TABLE 23. NUMBER OF INFANT DEATHS, INFANT MORTALITY RATES* AND PERCENT CHANGE IN RATES* BY REGION AND POLITICAL SUBDIVISION, MARYLAND, 1995-1999 AND 2000-2004

Region and	Number of infant deaths		Average infant mortality rate*		Percent	
Political Jurisdiction	1995-1999	2000-2004	1995-1999	2000-2004	Change**	
Maryland	**3053**	**2935**	**8.5**	**7.9**	**-7.1**	***
Northwest Area	150	160	5.6	5.7	0.2	
Garrett	13	17	7.3	10.5	43.5	
Allegany	20	32	5.2	9.1	73.1	
Washington	46	44	6.8	5.3	-9.2	
Frederick	71	67	5.4	4.5	-16.7	
Baltimore Metro Area	**1427**	**1359**	**8.5**	**8.1**	**-4.9**	
Baltimore City	619	551	12.6	12.0	-5.3	
Baltimore County	353	347	7.8	7.5	-3.4	
Anne Arundel	222	235	6.8	6.9	-0.9	
Carroll	55	39	5.8	4.1	-30.2	
Howard	79	117	4.7	6.6	41.4	***
Harford	99	70	6.7	4.8	-28.8	***
National Capital Area	**1134**	**1073**	**9.4**	**8.4**	**-10.8**	***
Montgomery	410	380	6.8	5.7	-15.5	***
Prince George's	724	693	12.0	11.2	-6.6	***
Southern Area	**144**	**147**	**7.6**	7.1	**-6.2**	
Calvert	28	24	6.0	**4.8**	-21.2	
Charles	60	70	7.3	7.8	6.5	
St. Mary's	56	53	9.1	8.0	-12.3	
Eastern Shore	**198**	**196**	**8.6**	**8.1**	**-6.8**	
Cecil	44	40	8.0	6.8	-14.9	
Kent	6	9	6.1	10.2	68.2	
Queen Anne's	25	11	11.1	4.4	-60.6	***
Caroline	27	16	15.0	7.7	-48.4	***
Talbot	6	10	3.5	5.6	58.3	
Dorchester	12	17	7.4	10.1	36.5	
Wicomico	43	57	8.0	9.8	22.5	
Somerset	13	20	10.5	15.4	46.3	
Worcester	22	16	9.1	6.7	-26.2	

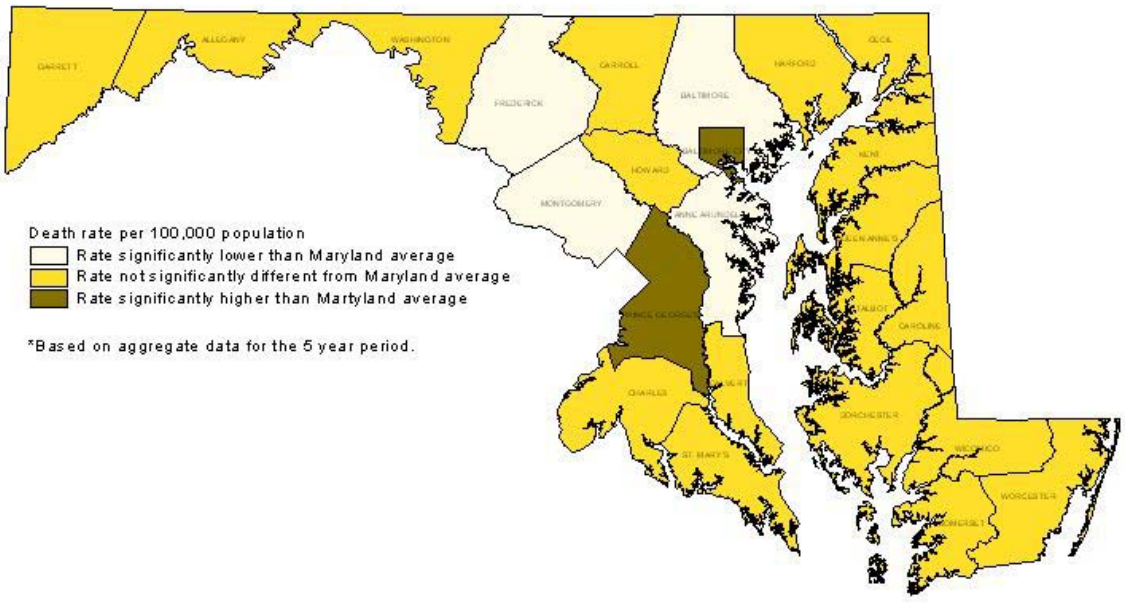
Source: Infant Mortality in Maryland, Vital Statistics, Administration, DHMH
*Per 1000 live births
**Percent change is based on the exact rates and not the rounded rates presented here.
***Rates for 1995-1999 and 2000-2004 differ significantly ($p<0.5$)

TABLE 24. NUMBER OF DEATHS, DEATH RATES AND PERCENT CHANGE IN RATES FOR CHILDREN 1-17 YEARS, MARYLAND, 1995-1999 AND 2000-2004

Region and	# Deaths*		Death Rates		Death Rates**	
Political Jurisdiction	1995-1999	2000-2004	1995-1999	2000-2004	Change***	
Maryland	**1826**	**1730**	**30.1**	**26.3**	**-12.7**	****
Northwest Area	**118**	**125**	**24.9**	**23.9**	**-4.1**	
Garrett	8	12	21.8	34.8	60.0	
Allegany	24	21	37.2	29.3	-21.3	
Washington	38	44	27.2	29.5	8.3	
Frederick	48	48	20.6	17.9	-13.0	
Baltimore Metro Area	**974**	**858**	**33.8**	**28.0**	**-17.0**	****
Baltimore City	459	373	57.1	49.0	-14.2	****
Baltimore County	211	171	26.9	19.9	-26.2	****
Anne Arundel	137	124	25.0	20.7	-17.3	
Carroll	50	42	27.1	20.7	-23.6	
Howard	49	75	16.9	22.0	30.0	
Harford	68	73	24.9	24.7	-0.7	
National Capital Area	**475**	**501**	**25.7**	**23.4**	**-9.1**	
Montgomery	147	172	15.4	15.8	2.2	
Prince George's	328	329	36.6	31.2	-14.7	****
Southern Area	**118**	**106**	**31.7**	**26.6**	**-16.3**	
Calvert	32	31	33.5	28.5	-14.9	
Charles	53	41	33.0	23.8	-28.0	
St. Mary's	33	34	28.5	28.9	1.5	
Eastern Shore	**141**	**140**	**32.2**	**30.4**	**-5.8**	
Cecil	24	41	22.5	35.4	57.3	
Kent	7	3	36.3	16.0	-55.9	
Queen Anne's	11	16	24.5	31.0	26.4	
Caroline	5	10	13.7	26.4	92.8	
Talbot	8	5	24.1	14.3	-40.7	
Dorchester	15	9	44.3	26.9	-39.3	
Wicomico	39	34	40.4	33.9	-16.1	
Somerset	12	5	52.3	22.6	-56.8	
Worcester	20	17	46.0	36.4	-20.8	

*Source of data: Analysis of death data from Vital Statistics Administration
**Per 100,000 population
***Percent change is based on the exact rates and not the rounded rates presented here
****Rates for 1995-1999 and 2000-2004 differ significantly (p<.05)

Figure 14. Comparison of County Death Rates for Children ages 1-17 Years with the State Average, Maryland , 2000-2004*.



CONCLUSION

Although child deaths and death rates are declining in Maryland, there is still room for improvement. The most common causes of death in children and adolescents are frequently related to preventable factors. Provision of data that describes the extent, distribution and risk factors of childhood deaths is vital to policy makers, health professionals and communities to enable them to make decisions about allocation of resources and institution of effective strategies to prevent future child fatalities, and to monitor progress. The data presented here supplements the review process of local Child Fatality Review teams (CFR) to gain an understanding of the circumstances surrounding the death of children in their jurisdictions. Because CFR teams are multi-disciplinary and multi-agency, they are uniquely qualified to understand what no single agency or group working alone can: how and why children are dying in their communities. In many cases, this review provides important information, which can direct appropriate prevention initiatives by local authorities. In addition, state and federal initiatives are important in avoiding preventable deaths in children.

APPENDIX A: NUMBER OF CHILDHOOD DEATHS, 1-17 YEARS, BY JURISDICTION MARYLAND, 2000-2004

Regional and Political Jurisdiction	2000	2001	2002	2003	2004	Total
Maryland	**333**	**351**	**340**	**332**	**374**	**1730**
Northwest Area	24	25	18	32	26	125
Garrett	5	3	0	2	2	12
Allegany	4	5	2	6	4	21
Washington	7	10	6	12	9	44
Frederick	8	7	10	12	11	48
Baltimore Metro Area	**169**	**165**	**183**	**165**	**176**	**858**
Baltimore City	69	60	93	76	75	373
Baltimore	37	38	31	31	34	171
Anne Arundel	25	26	23	23	27	124
Carroll	9	7	7	8	11	42
Howard	16	16	12	15	16	75
Harford	13	18	17	12	13	73
National Capital Area	**96**	**108**	**90**	**91**	**116**	**501**
Montgomery	38	35	27	31	41	172
Prince George's	58	73	63	60	75	329
Southern Area	**20**	**15**	**18**	**24**	**29**	**106**
Calvert	5	5	2	8	11	31
Charles	4	6	13	9	9	41
St. Mary's	11	4	3	7	9	34
Eastern Shore	**24**	**38**	**31**	**20**	**27**	**140**
Cecil	10	11	9	4	7	41
Kent	0	0	1	0	2	3
Queen Anne's	1	5	2	3	5	16
Caroline	2	1	4	1	2	10
Talbot	1	1	1	2	0	5
Dorchester	2	3	2	1	1	9
Wicomico	6	9	8	5	6	34
Somerset	0	3	1	0	1	5
Worcester	2	5	3	4	3	17

Source: Analysis of data from Vital Statistics Administration, DHMH